

## I. HOMEdotOLD - Objectives

Nowadays, the population of the elderly grows absolutely and relatively compared to the overall population worldwide. The evolution of ICT has allowed the development of products for the home environment assisting elderly with their daily activities including smart home solutions for devices/appliances management and pro-active remote healthcare. However, social interaction and connectivity support for elderly is lagging behind for the following reasons:

- The average elderly person is not always familiar with technology in general, thus experiencing difficulties in using ICT-based services.
- The user terminals and interfaces provided for such applications are, sometimes, complicated even for ICT-experienced younger users.
- New technologies usually impose long training procedures and a high learning curve for the elderly

HOMEdotOLD delivers web-services advancing the social interaction of elderly people on an internet enabled television (Net TV) and within the project the focus will be on the development of the following 2 main categories of services:

- **Personal motivation services, i.e. services for staying socially active, preventing loneliness and isolation, enabling voluntariness, motivation and activation:** This service category includes services allowing the elderly to perform meaningful activities that are useful and satisfactory for the society and themselves and create new living experiences. This category of services includes:
  - **“Social voluntary work”** service; this service runs in cooperation and under the supervision of social care organizations and notifies registered elderly volunteers about several areas of social voluntary work in which they can be involved, thus encouraging elderly people to actively contribute to solving societal problems and to perform meaningful activities that create self-satisfaction.
  - **“Personalized news headlines”** service, which provides easy access to news headlines at regional, national, European, worldwide levels, with special emphasis on news that inform the elderly user about the activities of interest.
- **Social networking services, i.e. services for bridging distances and supporting existing roles:** This service category includes services allowing elderly living far away from their families and close friends to keep in touch with them and support existing roles. This category of services includes:
  - **“Intelligent calendar”** service, which allows synchronization of the elderly’s agenda with the agendas of friends and family, receiving notifications about possible common activities.
  - **“Videoconference”** service, which allows you video-telephony via Skype
  - **“Remote dining”** service, which will enable virtual eating together with friends and families.
  - **“Photos, videos, experience sharing”** service, which allows keeping in touch with friends and families and share experiences.

## II. Importance of user requirements

The user requirements collection is a research exercise which was undertaken early in the HOMEdotOLD project to establish and qualify the main objectives. The aim of the research was to understand the product from a user's perspective, and to establish users' common needs and expectations. The requirements capture findings were used to balance the business goals with the user needs to increase the chance that the project will be successful.

The main advantages of the user requirements collection were the saving of time and money by validating the scope of the project against its users' needs and expectations before any work begins.

## III. User groups and requirements capture methodology

The user requirements collection and analysis aims at providing insights on user needs, as well as on the nature of the HOMEdotOLD services. First step in the user requirements process was to identify the target user groups which are:

- **Group A:** elderly people aged 54+ (patient's caregivers, friends and/or relatives)
- **Group B:** elderly people aged 54+ with age related cognitively and physically health diseases

Regarding the requirements elicitation from the user perspective, a general methodological framework was defined, which was then further elaborated by Municipality of Kropia (KRP, Greece), LifeTool (LFTL, Austria) and the National Foundation for the elderly (NFE, Netherlands), based on the different user groups special needs and their expertise.

Therefore typical use-cases, scenarios and questionnaires were created by the pilot sites in order to make the interviews. This was a long process where all ideas and approaches were discussed in detail. The pilot site partners finally agreed on one optimal version of use-cases, scenarios and questionnaires for the interviews. Those were carried out among users with different education and disabilities in the age of 54-90. It was specified that each site would involve 7-15 users. The following table illustrates the number of users and the sites involved in the results.

<b>HOMEdotOLD pilot-site</b>	<b>Number of users</b>	<b>Age</b>
Greece (KRP)	7	in the age of 54-71
Netherlands (NFE)	12	in the age of 69-85
Austria (LFTL)	12	in the age of 62-90

**Table 1-Participating Sites and Users**

The interview included free discussions on the use-cases and scenarios as well as qualitative and quantitative face-to-face surveys which were based on pre-defined guidelines. The questionnaires included personal questions, questions about home entertainment and communication devices, questions about social activity preferences as well as a rating of the HOMEdotOLD services. In the following section the interview outcomes from every pilot site concerning the questions related to the HOMEdotOLD services are carried out more in detail.

#### IV. User reaction on the proposed services

##### Personal-guideline-based interview Results of the Greek pilot site

On the Greek pilot-site 7 elderly people have been interviewed. Only one of them suffered from health problems which do not affect her/his daily activities. All the other interviewees enjoy a healthy life and they don't need any support to their movements. The majority (6 out of 7) were woman. Figure 1 shows that the Greek interviewees seem quite enthusiastic concerning the perspective of using the HOMEdotOLD services. In addition to that they stated that an internet enabled TV, with the specified services, could open new horizons in their communication and home entertainment. The intelligent calendar service was the only exception for which only half of the interviewees expressed an interest. However the elderly people had no problems in understanding the basic content of the services and only two could not point out what was exactly meant by the intelligent calendar service. It should also be noted that even the people who do not use a computer, looked upon the HOMEdotOLD services favorably. Moreover no elderly rejected the services as a whole, only one out of seven was skeptical on the offered services.

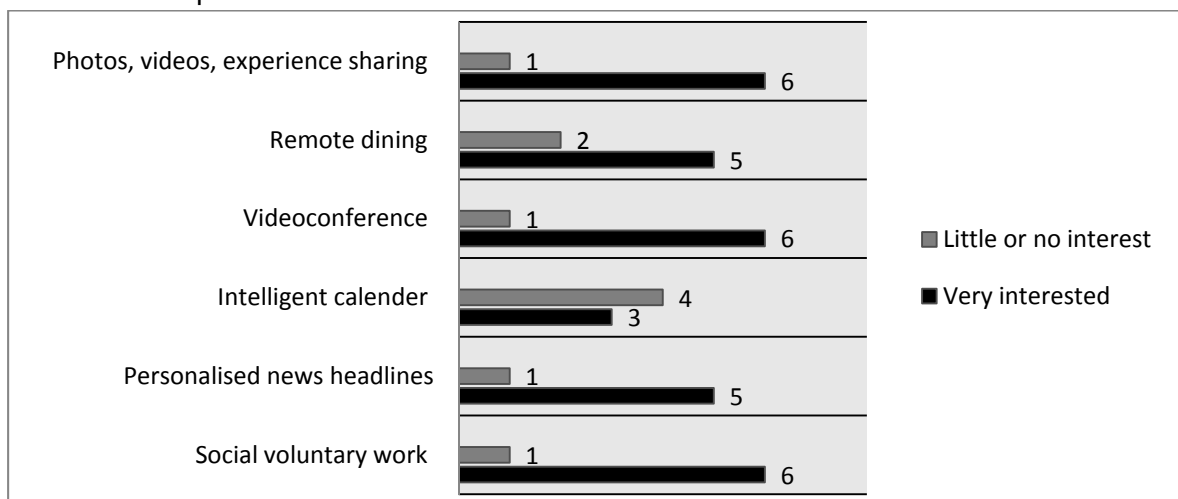


Figure 1-Rating of HOMEdotOLD Services (KRP)

##### Personal-guideline-based interview Results of the Dutch pilot site

Concerning the Dutch pilot-site 12 elderly respondents participated in the interviews. Of the participants 7 were interviewed using the interview schema that was used within the consortium. However the qualitative data is still based on all 12 respondents. As it can be seen in Figure 2 viewing and sharing photos was rated as very interesting by all respondents. Most respondents participated already in volunteer work at a local meeting place. As a result the social voluntary work service was found interesting by 5 elderly. Videoconferencing also enjoyed great interest among almost all respondents. Moreover the intelligent calendar service was found interesting by some, not so interesting by others. Proponents said that they could have a calendar now e.g. on a mobile phone, but that the screen is too small or the menu navigation is too complex. Opponents mentioned that they would rather call to make an appointment, since they found this more personal. There was also a lack of interest as far as the remote dining service is concerned.

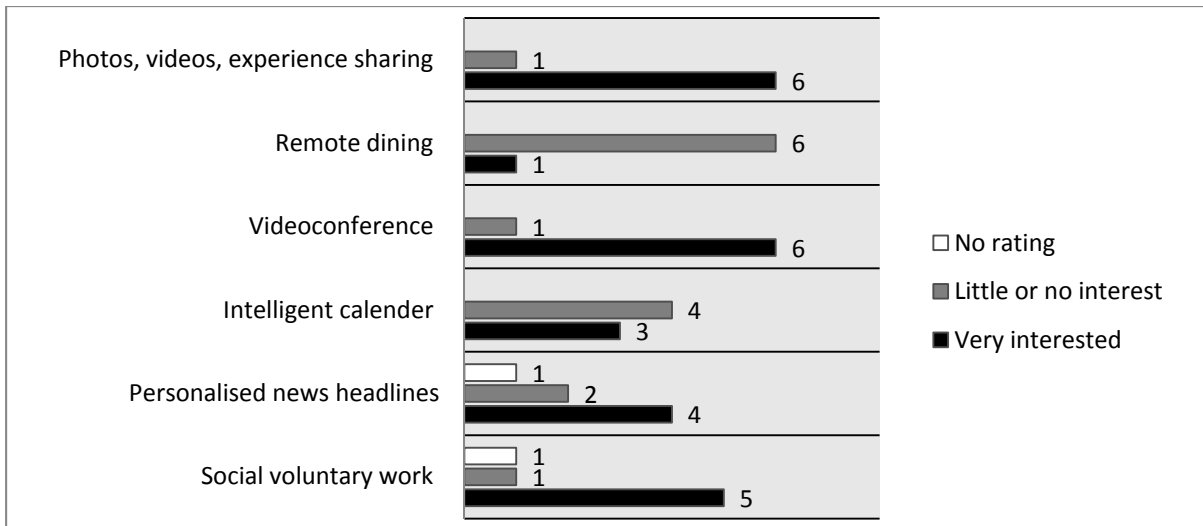


Figure 2-Rating of HOMEdotOLD Services (NFE)

### Personal-guideline-based interview Results of the Austrian pilot site

On the Austrian pilot-site 12 elderly people were interviewed. They seem quite skeptical and not so open-minded like the Greek's and the Dutch's concerning the perspective of using the HOMEdotOLD services. As can be seen in Figure 3, it turned out that there were only two groups: the ones who were rejecting the services and the ones who were very interested in them. The graph shows very clearly that the intelligent calendar services as well as the remote dining service were principally unwanted.

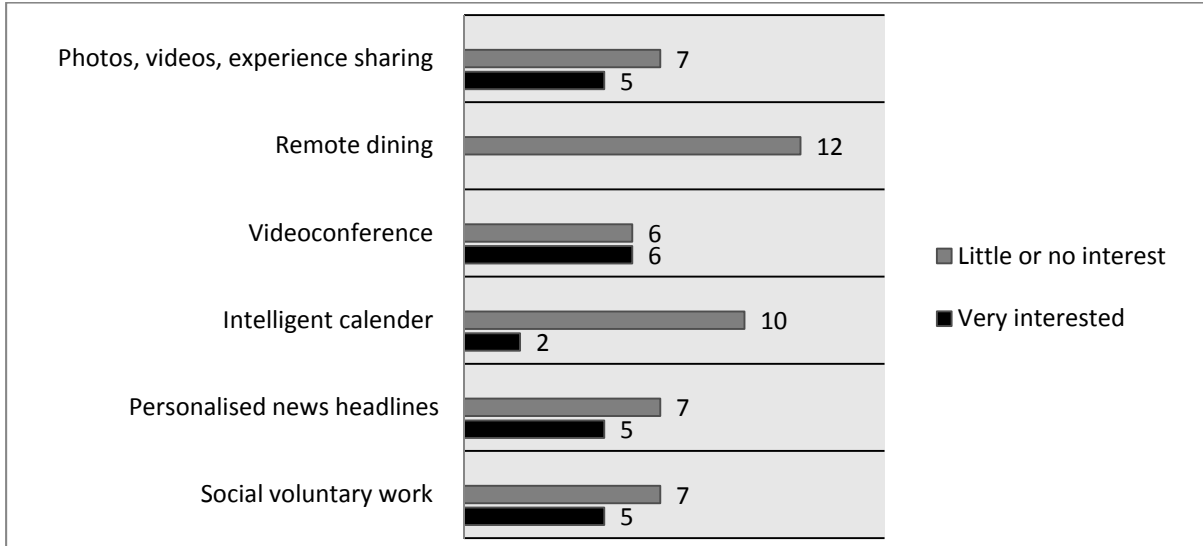


Figure 3-Rating of HOMEdotOLD Services (LFTL)

## V. User requirements process conduction

After all interviews and discussions were conducted, the user-requirements were derived from each pilot-site. Apart from that the user requirements were identified by unique identifiers which remained constant during the full development process. The pattern is HOMEdotOLD-<User Site>-<Category>-<Number>. Where <User Site> is a letter identifying the Country, <Category> is a letter identifying the category of the requirement and <Number> a unique number for the category. The categories are: “S” for service usage requirements, “C” for security requirements and “I” for user interface requirements.

In the section below, there are a few user-requirements mentioned.

<b>HOMEdotOLD-GR-S-1</b>	HOMEdotOLD Manual
	<i>Careful design of the accompanying manual of HOMEdotOLD services (not so much complicated and in the language of targeted users)</i>
<b>HOMEdotOLD-GR-S-1</b>	Adjustable TV font size
	<i>Ability to adjust the font of the texts shown in the TV platform, especially when it comes to personalized news headlines service</i>
<b>HOMEdotOLD-NL-I-1</b>	Remote control with sufficient spacing between buttons
	<i>Participants mentioned that they have troubles with the distance between buttons on the remote control</i>
<b>HOMEdotOLD-NL-S-1</b>	Voicemail functionality
	<i>Like an answering machine, what if someone is not there</i>
<b>HOMEdotOLD-AUT-C-1</b>	Security and privacy settings for the intelligent calendar and the photos, videos, experience sharing services
	<i>There should be security settings (like in Facebook) for the intelligent calendar service and the photos, videos, experience sharing service, so that the user has the free choice which dates, photos or videos he is presenting who.</i>
<b>HOMEdotOLD-AUT-S-1</b>	The user should be able to turn the camera on or off while videoconferencing
	<i>This led to more privacy and the free choice if the user wants to be seen while talking or not.</i>

## **VI. Conclusion**

The results of every pilot site show together that the elderly prefer the videoconference service as well as the photo, video and experience sharing service the most. As a result it is clearly that it is a fundamental request of elderly to exchange themselves with other humans and to communicate with them. The bigger part of the interviewed people also indicated that they would be interested in participating in social voluntary work, to have fun and experience satisfaction i.e. through performing meaningful activities. Moreover it can be said that the elderly generation although they have special needs, prefer leading a private life without being too much monitored by their relatives.

Despite the potential costs incurred early in the project lifecycle and the time was spent, the user requirements capture was an essential tool for HOMEdotOLD which interfaces between the business and its users. Understanding user needs and requirements at the beginning of the project helped ensure that the product gets fully adopted by its users. The user-requirements process saved business from investing time and money in a product which is not required by the target audience.